

CLAIMS

What is claimed is:

1. A method for providing wireless communication of digital signals, the digital signals being communicated between a plurality of wireless subscriber units and a base station, the digital signals being communicated using at least one radio frequency channel via Code Division Multiple Access (CDMA) modulated radio signals, the digital signals also having a given nominal data rate, the method comprising the steps of:
 - a) making available a plurality of subchannels within each CDMA radio channel, wherein a data rate of each subchannel is much less than the nominal data rate of the digital signals;
 - b) allocating available subchannels only on an as-needed basis, wherein the number of subchannels allocated is variable during the duration of a given session; and
 - c) on a reverse link, providing an idling mode connection for subscriber units which are powered on, but not presently actively sending data, wherein the idling mode connection is operable to enable to subchannels to be reallocated without reestablishing a bit synchronization with the base station.
2. A method as in claim 1 wherein the step of providing an idling mode connection the subscriber unit sends a heartbeat signal at a data rate which is low enough to maintain the bit synchronization with the base station.
3. A method as in claim 2 wherein the data rate of the heartbeat signal is from about 37 to 80 bps.

4. A method as in claim 1 wherein in order to reduce the overhead of maintaining the connections, instead of assigning a different Walsh code to each subscriber, the subscriber units use the same PN long code but at different code phases.
5. A method as in claim 2 wherein the heartbeat message is time slotted between inactive links, to allow fewer dedicated base station receivers to maintain the links.
6. A method as in claim 1 wherein to enter an active state, the subscriber unit sends a command requesting a higher data service rate.
7. A method as in claim 6 wherein upon receiving a request for higher capacity data or voice traffic, the base station hands the link to a reverse channel traffic processor, and the higher rate is then made available by the base station assigning additional code phases to the subscriber unit.
8. A method as in claim 7 wherein the additional code phases are assigned in a predetermined phase relationship to minimize overhead transmissions from the base station traffic channel processor.
9. A method as in claim 6 wherein the ramp-up of data rate may occur in two phases, with the subscriber unit first being granted only access to a lower available rate channel, prior to granting access to a full rate channel.
10. A method as in claim 1 wherein if the base station determines that the maximum data rate for one connection is not enough, additional code channels are assigned to the subscriber.

11. A method as in claim 10 wherein the additional channels have a predetermined relationship to the original code phase.
 12. A method as in claim 1 wherein a plurality of subchannels are made available on a single radio frequency carrier by assigning orthogonal codes for each subchannel.
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